WHAT IS CLAIMED IS:

1. A wavelength division multiplexing optical transmission method wherein n (n: 4 or a larger integer) pieces of signal lights can be transmitted, comprising the steps of:

grouping transmittable n (n: 4 or a larger integer) pieces of signal lights by x pieces (x: integer, $2 \leqq x < n$); and

transmitting a control light having the same power as the total power of signal lights not transmitted in the group in case the number of transmitted signal lights in the group is smaller than x.

2. A wavelength division multiplexing optical transmission method according to Claim 1, wherein:

in case the number of transmitted signal lights in one group is smaller than x, the total level of the transmitted signal lights and the control light is equal to the total level of transmittable x pieces of signal lights in the group.

3. A wavelength division multiplexing optical transmission method according to Claim 1, wherein:

an optical transmission line on which a signal light and a control light are propagated is preset so that the wavelength characteristic is flat in case light acquired by multiplexing n pieces of signal lights is propagated.

4. A wavelength division multiplexing optical transmission method according to Claim 1, wherein:

a control light transmitted in each group has the same

wavelength as that of a signal light last transmitted in the corresponding group.

5. A wavelength division multiplexing optical transmission method according to Claim 1, wherein:

the control light is a continuous wave (CW) light.

6. A wavelength division multiplexing optical transmission method wherein n (n: 4 or a larger integer) pieces of signal lights can be transmitted, comprising the steps of:

grouping transmittable n (n: 4 or a larger integer) pieces of signal lights by x pieces (x: integer, $2 \leqq x < n$); and

transmitting a control light having the same power as the total power of signal lights not transmitted in the group and having the same wavelength as that of a signal light last transmitted in the group in case the number of transmitted signal lights in the group is smaller than x.

7. A wavelength division multiplexing optical transmission system wherein n (n: 4 or a larger integer) pieces of signal lights can be transmitted, comprising:

one or more signal light transmitters that respectively transmit a signal light;

a first optical multiplexer provided with x (x: integer, $2 \leqq x < n$) pieces of signal light input ports;

an optical branching device that branches light output from the first optical multiplexer;

a control light transmitter that transmits a control light

based upon the level of the branched light from the optical branching device;

a second optical multiplexer that multiplexes light output from the first optical multiplexer and the control light;

an optical transmission line on which multiplexed light output from the second optical multiplexer is propagated;

an optical demultiplexer that demultiplexes the light transmitted via the optical transmission line into signal lights of respective different wavelengths; and

optical receivers that receive the signal lights demultiplexed by the optical demultiplexer.

8. A wavelength division multiplexing optical transmission system according to Claim 7, wherein:

the control light transmitter outputs a control light of power equivalent to difference between the following levels in case the level of branched light from the branching device is lower than the total level of x pieces of signal lights.

9. A wavelength division multiplexing optical transmission system according to Claim 7, wherein:

a control light has the same wavelength as that of a signal light last transmitted from x pieces of signal light transmitters corresponding to the control light transmitter.

10. A wavelength division multiplexing optical transmission system according to Claim 7, wherein:

the optical transmission line is regulated so that the

wavelength characteristic is flat in case multiplexed light acquired by multiplexing n pieces of signal lights is propagated.

11. A wavelength division multiplexing optical transmission system according to Claim 7, wherein:

multiplexed light output from the second optical multiplexer has a level at which the wavelength characteristic is flat on the optical transmission line.

12. A wavelength division multiplexing optical transmission system wherein n (n: 4 or a larger integer) pieces of signal lights can be transmitted, comprising:

one or more signal light transmitters that respectively transmit a signal light;

a first optical multiplexer provided with x (x: integer, $2 \leqq x < n$) pieces of signal light input ports;

an optical branching device that branches light output from the first optical multiplexer;

a control light transmitter that transmits a control light based upon the level of branched light from the optical branching device;

a second optical multiplexer that multiplexes the light output from the first optical multiplexer and the control light;

an optical transmission line on which multiplexed light output from the second optical multiplexer is propagated;

an optical demultiplexer that demultiplexes the light transmitted via the optical transmission line into signal lights of respective different wavelengths; and

optical receivers that receive signal lights demultiplexed by the optical demultiplexer, wherein:

the control light transmitter outputs a control light having power equivalent to difference between the following levels in case the level of branched light from the branching device is lower than the total level of x pieces of signal lights; and

a control light has the same wavelength as that of a signal light last transmitted from x pieces of signal light transmitters corresponding to the control light transmitter.